# AMERICAN FRUIT GROWER

## PLANTING ISSUE

OCTOBER - 1938

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# Firestone
## GROUND GRIP TIRES

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OCTOBER 1938
VOL. 58 No. 10

# AMERICAN FRUIT GROWER

*The*
*NATIONAL FRUIT MAGAZINE*

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DR. J. H. GOURLEY, Associate Editor
E. A. KRAUSE, Associate Editor
WILLIAM H. ZIPF, Field Editor
T. J. TALBERT, Contributing Editor
MARY LEE ADAMS, Home Economics Editor

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ROGER FISON, Eastern Manager.
CHICAGO, 123 W. Madison St. Phone—Central 0465.
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## STABILIZING THE FRUIT INDUSTRY

THE commercial fruit industry of America passed through a period of incipience during the third quarter of the last century; it grew literally by leaps and bounds during the next 50 years and new areas of vast extent were planted. Today this industry is not looking for expansion on a large scale but, rather, it is experiencing curtailment and self-imposed restriction in order more nearly to balance production and consumption. Now it has reached the point where it is highly important to stabilize the industry and make it less speculative.

Many and varied are the suggestions made to accomplish this purpose and certainly no one is adequate. We venture to suggest a few which appeal to us as pertinent.

In this issue of AMERICAN FRUIT GROWER attention is called to planting plans. If old orchards are not replaced by young blocks of trees the economics of production is jeopardized and fruit of small size and inferior quality is produced. If new varieties do not replace the old, we will continue to live in a Baldwin-Ben Davis-Elberta-Concord age. In a recent trip through the East the editors saw the Milton apple as a runner-up for the place of Wealthy where local or near-by markets want something better in quality. Cortland was making a place for itself near New York City, the Elberta peach is scarcely planted at all through New Jersey and near-by states, and Stanley is being planted where a prune type of plum is wanted.

Another stabilizing force is that of a comprehensive research program. Large industries are maintaining or enlarging their research laboratories, and the director of one of the largest of these recently told us that he considered the success of their industry was based directly upon their continuing program of high grade investigation and that it has never slackened during the days of depression. To what other agency can the fruit grower look for unprejudiced information? Without such a body of facts we must be content to sit on the side lines and watch the procession of progress in other fields march by.

The outstanding work of Dr. Ira A. Manville at the Oregon Medical College upon the therapeutic value of apples and other fruits is an excellent case in point. The field of products which can be isolated from apples in the treatment of disease seems to be beyond the belief of even the most optimistic. Here is a practical solution not only of a part of the cull problem but also that of the surplus crop of first-grade apples.

In taking a long look ahead we see the importance of adaptation of fruit to sites and soils that are congenial. Orchards in unfavorable places will ultimately go and in the meantime they will have been profitable to no one. A favorable soil, climate, and topography are the great essentials in selecting that new orchard site. This is impressed upon anyone who has eyes to see.

So, by keeping the orchard young, by the use of new and superior varieties, by a sound research program in every fruit growing state, by the intelligent choice of orchard sites, and the use of attractive packages and of good salesmanship, much of the irregularity and speculative nature of the fruit industry can be avoided.

E. W. Schadler, Niles, Mich., cultivates his peach orchard with a McCormick-Deering O-14 Tractor and No. 10-A Disk Harrow.

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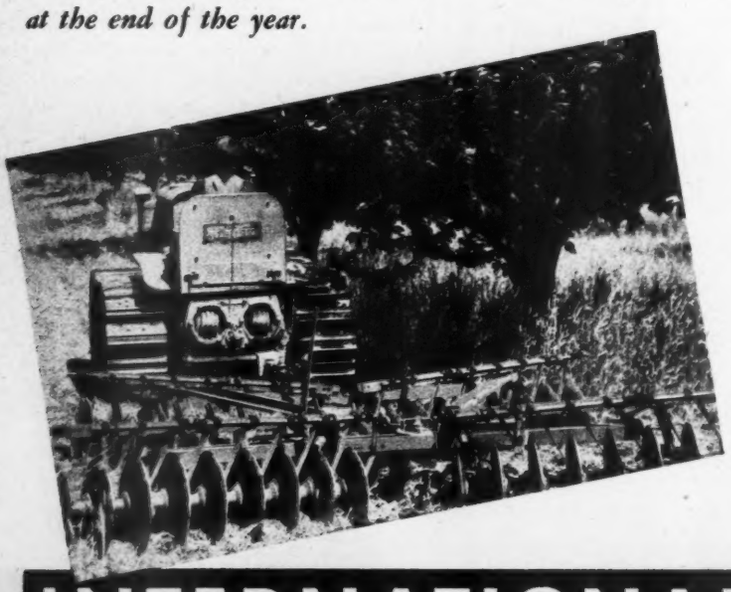
*Whatever your need,* there is an International Harvester Orchard and Grove Tractor to do *your* job.



**INTERNATIONAL HARVESTER COMPANY**
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**180 North Michigan Avenue, Chicago, Illinois**

Left: Another disk harrow operation, with an International T-20 TracTracTor furnishing the power.

**INTERNATIONAL HARVESTER**

# PRELUDE TO PLANTING

## SELECTION OF SITE, CLEARING PREPARATION OF SOIL

COLD winters, spring frosts, and droughts during the past few years have added to the importance of proper site selection for orchards. While there have been numerous equipment and method introductions designed to lessen hazards, it is far better to select a site having proper qualifications for good tree growth than to expend time and money later to battle the elements of nature.

Because our colder winters have brought casualties to orchard trees, probably the first point to consider when selecting land is freedom from frost injury. Rolling or hilly land usually provides sufficient air drainage to minimize frost injury if trees are planted on sides and tops of the hills and not in depressions.

Another factor associated with frost protection is nearness to large bodies of water. And, although the orchard may be so located, there will not be a great deal of protection unless prevailing winds blow over the water. It is important to avoid woodlands near orchards for they impair the flow of air to lower levels forming "frost pockets."

Careful study given to soil conditions will be repaid in later results since from the soil come most of the important n a t u r a l resources for fruit. True, fertilizers can be added if soils are too poor, but costs of conditioning to the proper productive stage may be prohibitive.

Conditions to guard against are presence of hardpan near the surface, shallow soil if there are underlying rock ledges, and shallow topsoil if wind or water erosion has been in progress on barren land.

Drainage, too, is important for orchard sites. A common malady of fruit trees is "wet feet." Natural drainage is usually present in rolling land soils. If soils are not naturally drained, lines of four-inch drain tile should be laid every 40 feet.

Most state colleges, experiment stations, or extension services maintain soil testing departments. Where possible, soil samples from potential sites should be sent to these departments. Results of the tests will indicate needs of the soil for tree and cover crop growth. And, if available, state extension horticulturists will gladly furnish information on proper procedures.

Although they may seem incidental, other factors which are often almost as important as those given above are nearness to markets, good roads, availability of irrigation and spraying water, presence of good labor, electricity supply at hand, and, if a retail roadside stand is planned, the volume of travel on roads near the orchard site.

All of these factors must be carefully considered when planning the orchard location. Fortunately, man-made resources may be called into action if certain of the factors are slightly lacking, but, as stated above, much difficulty will be sidetracked if a favorable site is selected in the beginning.

There is an abundance of opinions pro and con on the question of fall versus spring planting. Some of the comparatively recent conceptions of overwinter feeding by the roots probably influence many growers to set trees in the fall. On the other hand, probably as many, especially in colder northern areas, prefer to forego risks of winter injury by delaying planting until spring. Answer to the question, then, rests mainly with local climate conditions. Particularly for brambles and strawberries, the danger of cold winters is a limiting factor against fall planting.

Many growers prepare land, let it lie fallow overwinter, and plant as early in the spring as conditions permit. If the orchard site is in sod, the

*(Continued on page 8)*

**Where young orchards are to take the place of old or outmoded plantings, one of the first jobs is to remove the old trees. A sturdy chain on a powerful tractor does the work of tree pulling before land is ready for preparation.**

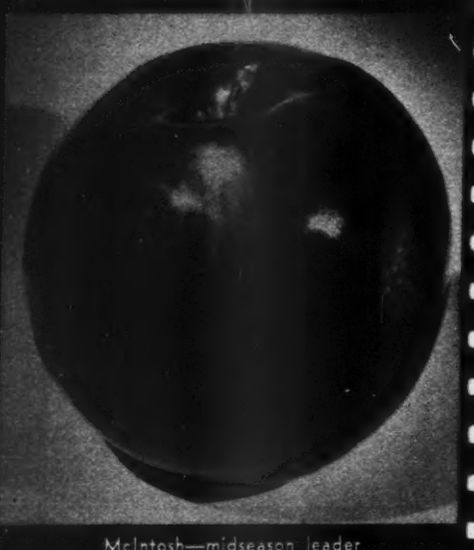
**If soils are light, it's easy to get them into planting shape with a good cultivator. Type shown here is suitable when used on most orchard soils.**

**The cultipacker gives a real finish to any job of soil working. Used mainly for seedbeds and in some cases for rolling after seeding, it is also good for finishing touches on soils that are to receive newly set stock.**

**Should it be necessary to work over land that has been idle for some time before setting out new stock, a good plow, such as this unit, allows working of a large tract in a relatively short time with uniform results.**

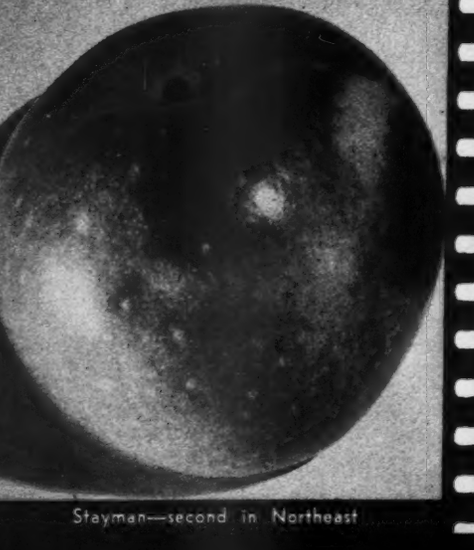
**Another implement that frequently finds its way into the soil preparation picture, is the spring-tooth harrow, for the strong teeth break up stubborn top soils so they will be more receptive to planting and also free of weeds.**

Delicious—national favorite



McIntosh—midseason leader

Yellow Delicious—ranks fourth



Stayman—second in Northeast

# FIRST NATIONWIDE

## AMERICAN FRUIT GROWER PRESENTS

## "ANALYZED" PLANTING GUIDE FOR GROWERS

THAT the variety situation is the most changeable phase of the fruit industry is an undisputed fact. Seeking to determine which apple varieties are being planted today, thus to forecast what our production 10 to 15 years hence is likely to be, AMERICAN FRUIT GROWER editors questioned more than 70 of the nation's leading nurserymen. Most definite information on variety trends is available from these men who are able to total each day their individual variety sales to growers. Thus this survey indicates what is actually being planted, not the most popular varieties being produced at the present time.

Variety popularity varies from section to section. This geographical factor must therefore be recognized in any nationwide variety survey.

Too numerous for mention in this summary are the reasons why certain varieties have won widespread acceptance, why others have slipped into partial or complete discard. Outstanding example of this change is the fact that McIntosh and Stayman have largely taken the place of Ben Davis and Baldwin. So, to inform growers on current and future apple variety trends, that they may better plan their planting programs, AMERICAN FRUIT GROWER has analyzed these pertinent facts.

In the early variety field the survey shows Yellow Transparent to be the outstanding apple. Of interest, too, is its general popularity, being second only in the north central states where Duchess (Oldenburg) has assumed the early variety planting lead and in California where Red Astrachan tops the list. Duchess is giving way in the Northeast to Early McIntosh, which is runner-up to the favorite, Yellow Transparent. In the South, holder of the early variety second place is Red June, followed by Red Astrachan and Duchess. Order of the midwestern early variety parade, after Yellow Transparent, is Duchess, Red Astrachan, Lodi, Red June, with Melba trailing in sixth place. While not an early apple section, the Northwest reports Yellow Transparent ahead by more than two to one with Red June, Red Astrachan, Duchess, and Early McIntosh ranking in the order named.

With sectional planting taking on a more definite pattern, the midseason variety findings show McIntosh as the most popular apple. In the Northeast, Midwest, and Northwest, Mac's are first in new plantings. Second most popular in this group is Wealthy since it ranks first in the North Central region, second in the South, Midwest, and Northwest, and third in the Northeast. A comparatively new apple, rapidly gaining popularity, particularly in northeastern, midwestern, and north central areas is the Cortland. On the basis of a national rating this variety stands third. Other rankings in the national mid-season rating are McIntosh, first by a wide margin; Wealthy, second; Maiden Blush, fourth; and Summer Rambo, Snow, Kendall, Gravenstein, Macoun, and Wolf River making up the first 10 varieties.

For the nation as a whole, probably most interest is centered on late varieties. By a two to one margin Delicious heads this list. It stands first in all sections except the north central where Northwestern Greening holds first place. Runner-up on a national basis is Jonathan, followed by Stayman, Yellow Delicious, Rome Beauty, Grimes Golden, Baldwin, Northern Spy, Winesap, York Imperial, Rhode Island Greening, Yellow Newtown, Northwestern Greening, Winter Banana, Yellow Bellflower, Wagener, Ben Davis, Tompkins King, Fall Pippin, and Esopus Spitzenburg, to complete the 20 leading late varieties.

Sectionally, Stayman and Jonathan are reported as principal competitors of Delicious. Midwestern preference ranks Jonathan as second, while in the Northeast and California it stands third, and fourth in the Northwest and north central states. But southern growers have forced Jonathan into eleventh place, advancing York Imperial, Stayman, and Rome Beauty into second, third, and fourth posi-

**Additional Variety Surveys**

**AMERICAN FRUIT GROWER will conduct surveys on peaches, pears, cherries, citrus, and small fruits if interest in these nation-wide variety studies justifies the expense. Write Editorial Department for further details.**

# VIDE APPLE VARIETY SURVEY

## STUDY OF VARIETY TREND ESTABLISHES SCIENTIFIC BASIS FOR NEW PLANTINGS

***To help growers chart their planting programs on a sound, fact basis, American Fruit Grower instituted a nationwide apple variety survey—the first of its kind. More than 70 of the country's leading nurseries co-operated by reporting those varieties of apple trees which are in greatest demand for new plantings. Since the varieties of trees now being planted will determine the apple production 10 to 15 years from now—growers can use the facts presented by this variety survey as a guide to an "analyzed" planting program which will keep them in step with prevailing trends in future apple production.***

*DEAN HALLIDAY*
*Managing Editor*

### FARSIGHTED GROWERS ARE CONCENTRATING ON THESE VARIETIES

**Early**

**In all but two sections Yellow Transparent heads the early variety list. Second place in national rating goes to Duchess, but this variety is being overshadowed in some northern areas by Early McIntosh and in the south by Red June and Red Astrachan.**

**Midseason**

**By far the favorite for midseason apple variety planting is the McIntosh. It is the leader in every section except the South and north central states, but ranks second even in the latter area. National rating shows Cortland and Wealthy second to McIntosh.**

**Late**

**Delicious, all types, leads by greatest margin in this group, and is almost twice as popular as its nearest contender, Jonathan. Other popular late varieties include Stayman, Yellow Delicious, Rome Beauty, Grimes Golden, Baldwin, Northern Spy, Winesap, and York Imperial.**

tions, respectively. That such varieties as Ben Davis are still being planted in certain sections is shown by its rating as fifteenth in the Midwest, nineteenth for northeastern states, fifth in north central, and eighth in southern states.

All types of Yellow Delicious fared with variable popularity from section to section. While they ranked third in the North Central area, they were fourth in the Midwest, fifth in the Northwest, seventh in the South, eighth in the Northeast, and ninth in California. As reported in this nationwide survey, Delicious and Yellow Delicious include all types of these fruits. The same is true of recently introduced special strains or sports of other varieties.

Of the long list of varieties currently being sold by nurserymen, but not mentioned above, the most popular are Anoka, Haralson, and Beacon. These are being planted mainly by growers in the northern states who are seeking hardiness. Southern orchardists are apparently looking toward the Lowry as an additional variety for their plantings, and the Turley gives promise of wider planting, especially in the Midwest. Though there may be a question as to why some of the other newer varieties do not appear here, it is apparent that growers are hesitant to make any substantial plantings of new types until they have been completely proved.

Nurserymen are emphatic on the varieties they believe should be removed from sale. But here, too, the matter of localities enters into the picture. The varieties which they suggest for culling range from Tompkins King, Ben Davis, and Wagener, through Rambo, Maiden Blush, and Chenango, depending on the performance, climate, and demand in each specific section.

Answering a question regarding the preference of growers for trees of various ages, the nurserymen reported that twice as many orders are for two-year-old trees than for one-year stock. A few reported requests for three-year apple trees, but the percentage as compared with the other ages is negligible.

Most nurseries report that growers are ordering the red strains of the older apple types. This, it appears, is especially true of Delicious. Some believe that as more of the red strains are introduced for other types, the acceptance will be just as great.

This survey, then, clearly indicates those varieties which are being planted heaviest in each section as well as the ranking of principal varieties from a national standpoint. A study of the variety trends shown by this survey gives growers a scientific basis for planning new plantings.

Rome Beauty—in fifth place

Northern Spy—popular in Midwest

Baldwin—now rates seventh

# PRELUDE TO PLANTING

*(Continued from page 5)*

trees are often planted before any working of the soil is done. Small fruits soils must, of course, be worked before planting.

After a good site has been selected, the work of planning begins. Assuming the fruits desired have been chosen, the next step is to arrange varieties according to pollination and seasonal standards. Much time can be saved when actual laying-out and planting operations are started by first charting the orchard layout and planting plan on paper. Most popular of the planting plans for tree fruits are the square, quincunx, triangle, and contour systems.

The most generally used planting distances are: apples, 30 to 40 feet; pears, 20 to 27; peaches, 20 to 24; sour cherries, 20 to 25; sweet cherries, 25 to 30; apricots, 18 to 22; quinces, 10 to 16; grapes, 8 to 10 feet apart in the row with rows 10 feet apart; strawberries, 15 to 20 feet in the row with rows 3 to 5 feet apart; red raspberries, 3 feet in the row with rows 7 or 8 feet apart for the hedge row and 5 or 6 feet apart each way for the hill system; black raspberries, purple raspberries, and blackberries, 4 feet in the rows and rows 8 to 10 feet apart; and Boysenberries, nectarberries, and Youngberries, 3 feet in the rows with rows 7 or 8 feet and 5 to 7 feet apart each way for the hill system.

Actual laying out of the orchard is usually started by establishing a base line along one side of the site. When determining the base line, being sure that ample space has been provided between the boundaries of the field and the first tree rows, I. P. Lewis, Ohio Experiment Station horticulturist, advises as follows:

"A line fence or roadway may be used as a base line, or surveyor's instruments may be used to establish the line. Stakes are then set along this line at the proper distance for planting the first row of trees.

"A carpenter's square or right angle made of wood strips is next set on three stakes at the end of this row or new base line placing the point of the square on the end stake. One side of the square is brought in line with the base and by sighting along the other edge of the square a stake can be set establishing a line or row at right angles to the base line. This row is then measured off at tree distances and stakes set. The square is then moved to the end of this row and the system repeated until stakes are set on all four sides of the orchard area. If the ground is very uneven it will also be necessary to set rows of stakes through the orchard in both directions at distances that can be readily seen.

"After this guide staking is done, three men set the stakes. The first sights in one direction, the second in the other direction, and the third man sets the stakes in position as signaled by the men doing the sighting. The guide stakes should be of light color and large enough to be seen readily. The remainder of the stakes need only be large enough to establish the position of the tree. If the ground is uneven a few long poles with the bark peeled off the top end so as to show white will be very useful for sighting.

"In staking an orchard for setting by the triangular or hexagonal method a base line is established along one side as before mentioned. Then a large triangle with a ring in each corner is made of heavy wire or chain, the sides of which are the length of the planting distance desired. By placing two of the rings over stakes on the base line the third ring will exactly locate a tree in the second row. By using each new row as a base line the remainder of the stakes may be set in like manner until the whole area is laid out.

"Another method used when only two men are available for the work is to prepare a wire in length equal to the exact distance the trees are to be planted apart and with a loop in one end large enough to hold a small pointed stick. One man then places the end of the wire at a stake on the base line and the other with the stick through the loop strikes a small segment of a circle upon the ground

*(Continued on page 16)*

**Many growers are now using peat moss at planting time. Illustration shows two plum trees planted eight years ago. Tree on right was planted with peat moss, that on left with soil alone.**

**Heavy steel prongs on this special cultivator break up the soil to release organic matter and valuable nutrients. This is of particular importance where old sites are to be reused.**

**In old fruit plantings as well as young the disk merits attention as an outstanding implement for soil cultivation. Conservation of soil moisture and rodent destruction are important.**

**Rubber tired tractors are key equipment on many fruit farms. Irrigation ditches, terraces, and hilly terrain are factors that make rubber tired tractors well-liked for orchards.**

**Orchard use of tractors has become so universal that most manufacturers make special models designed for fruit work. Here's one of the special models busy pulling a small disk.**

# FERTILIZING FOR FRUIT

## PLACE AND FUNCTION OF FERTILIZERS IN THE NEWLY SET AND ESTABLISHED ORCHARD

ON the trail of up-to-date fruit fertilizer recommendations, U.S.D.A. researchers have found that a well-developed 20-year-old apple tree needs from three-fourths to one pound of actual nitrogen each year for maintenance of good growth and fruiting. They have so studied nitrogen usage by the apple that their findings show about one-fourth to one-third pound of the nitrogen being used for development of a heavy fruit crop, one-third to one-half pound for a vigorous foliage system, and about one-fourth pound for new wood, bark, and root tissues which are laid down each year. And they add that this amount of nitrogen is carried in four pounds of cyanamid or sulphate of ammonia and in five pounds of nitrate of soda. But because of leaching, matting by sod, or other conditions, it is necessary to apply greater quantities of the nitrogen carriers than four or five pounds.

At Beltsville, Md., experiments have proved that while some nitrogen will be taken up by roots whenever it is present in available form, the intake of nitrogen is greatest when the tree is in foliage. Present findings of the U.S.D.A. workers indicate that readily available forms of nitrogen will be taken up by the roots from the soil solution and stored in the roots overwinter following fall applications after foliage has fallen.

But because a stream of water is continually passing into trees in foliage, they recommend making fall applications about a month before leaf fall and at or near full bloom for spring applications. This assures maximum intake of nitrogen and at the same time results in the beneficial residual condition where cyanamid is used, providing a continual feeding solution for roots during the winter. When cyanamid is used in the spring, its application should be from a month to six weeks before active growth gets under way since its availability is somewhat slower than the other carriers.

For greatest economy in the use of nitrogen fertilizers, they should be applied in the areas where there is relatively little competition from cover crops or sod, says Dr. J. R. Magness of the U.S.D.A. In most of our mature orchards, he adds, there is relatively limited growth of sod under the tree branches. He and his co-workers recommend that nitrogen be spread from the branch ends inward toward the trunk.

On most orchard soils tree growth is largely determined by nitrogen intake. Already mentioned are amounts of nitrogen needed for mature trees. But applications must be larger than the theoretical requirements if the quantity of actual nitrogen needed for the tree is to be supplied.

If one pound of actual nitrogen is to be the yearly minimum for each tree, at least five pounds of cyanamid or sulphate of ammonia and six pounds of nitrate of soda must be applied. In some cases even this amount may be insufficient, especially under heavy sod or cover crop conditions. Important, too, is the necessity of suitably fertilizing cover crops to lessen their competition with trees for soil nutrients.

Should complete fertilizers be a part of the tree feeding program, they must contain the same amount of nitrogen as stated above for the standard carriers.

Much of the experimentation covering fertilizer needs of deciduous fruits has centered on the apple. But the other fruits, too, respond to

*(Continued on page 10)*

**Even though an up-to-date fertilizer program is followed, it is frequently necessary to break up existing sod covers, as is being done by plowing in the upper illustration. This operation, followed by disking, also allows working soil into suitable seedbed.**

**Of importance in the fertilizing program is irrigation, since fertilizers are carried to feeding roots by leaching. Irrigation furrows illustrated here are being made by a system frequently used in the Northwest and for citrus.**

**To prevent loss of valuable fertilizer-transporting moisture after water is applied, cultivation is usually followed. By supplying a protective coating, escape of moisture is retarded.**

**Use of implements for cultivation is not limited to any one time. Many orchardists practice cultivation several times a season with implements such as the spring-tooth harrow shown here.**

**Terracing as at right prevents much of plant food losses caused by run-off. Increased use of terraces indicates growers find them satisfactory for soil management systems, especially where orchards are located on rolling land.**

# FERTILIZING FOR FRUIT

*(Continued from page 9)*

fertilization—particularly to nitrogen. Peach tree growth and yields, especially, have been appreciably increased. A criterion for nitrogen application to peaches is that enough be supplied to provide terminal growth of from 16 to 24 inches in length. A general recommendation for nitrogen application is one-third pound of any of the standard carriers for each year of the tree's age. In certain areas potash has been a necessary addition to the peach fertilizing program. Definite deficiency symptoms indicate the need for potash.

Apricots, cherries, and plums are benefited by the application of nitrogen. Tree growth and yields are the indexes of fertilizer use by these fruits.

Because of fire blight dangers, pear and quince trees under cultivation are given little or no fertilization. If orchards are in sod, one of the quickly available nitrogen carriers applied about a month before growth starts will aid early growth and setting of fruit. In turn, greater growth of the sod because of the fertilizer application usually checks later tree growth, bringing about hardening of the wood which increases fire blight resistance.

Brambles, like tree fruits, respond when nutrients are added to soils in which they grow. As with other fruits, nitrogen is the principal fertilizer for brambles. In general, an annual application of 250 to 300 pounds of a standard nitrogen carrier per acre is the bramble recommendation. During the first season, nitrogen fertilizer may be applied in a circle six inches from the plants.

Southern strawberry growers have found that a 4-12-4 or 5-15-5 commercial fertilizer gives strong, healthy, high-yielding plants. In northern regions, there is frequently little need for strawberry fertilizing if a good culture system is followed. However, on poorer soils, side dressing with a complete fertilizer during the first year has given good results.

Over a 26-year period, F. E. Gladwin of the New York Experiment Station has found that a grape plot fertilized with 250 pounds of nitrate of soda, 300 pounds of superphosphate, and 200 pounds of muriate of potash per acre outyielded check plots by 61 per cent. Another part of this test shows potassium to be more helpful with nitrogen than phosphorus.

Besides the variety of plant nutrients discussed here, there are instances of deficiencies of several of the lesser known elements. This is particularly important in some of the eastern coastal plain sections extending from New Jersey southward through Florida and reaching northward again in those soils bordering the gulf. In New Jersey, especially, complete fertilizers as well as lime are being currently recommended for orchards. Some inland areas, too, have soils that produce trees with definite nutrient deficiencies other than that of nitrogen. Most of the trouble associated with these areas is caused by lack of potassium. One recently discovered successful preventive for corky core or drought spot in areas where fruit is affected is the addition of borax to soils.

Not to be overlooked in any fruit fertilizer discussion is use of manure. Where available, a light manure mulch, especially for young trees, has given good results in getting growth of the new stock off to a fine start. Care must be taken in using such a mulch that it is not placed too near the trees. Mice prefer mulch for nesting and will cause damage to trees if the mulch provides a cover close to the trunks. For best results, well-rotted manure should be used.

These examples of recurring variations serve to point out the possible diversity of fruit nutrient needs. Experiences of growers in using fertilizers and continued research by professional workers will serve to clarify tree feeding problems as they appear in the future.

**To furnish as much green manuring as possible is the purpose of an orchard cover crop fertilizer program. Much accumulated organic matter can be turned into soils by spring disking as is being done in the photograph at top.**

**In certain areas, a covered disk is necessary to protect low-hanging fruit. This type of disking is often practiced after complete fertilizer applications so all possible nutrients may be released.**

**Preparation of a suitable seedbed is one of the first requisites for cover crop sowing and fertilizing. If soils are not in good shape, effects of fixed fertilizers on the covers are often lost. In this illustration a heavy, leguminous cover crop is shown being turned under.**

**Complete covering of green manuring is desired for best benefits to soils where full-foliaged cover crops are produced.**

**Reworking of tilled land is often practiced to keep it free of troublesome weed and animal pests. Seedbeds, especially, are bettered by frequent reworking where it is possible as part of the soil management program.**

# COVER CROP CULTURE

## SURVEY OF NEWEST TYPES OF COVER CROPS, PLANTING METHODS AND FERTILIZATION

As with many other questions having to do with fruit production problems, the matter of cover crops is one that changes from section to section. In a southern orchard an AMERICAN FRUIT GROWER editor recently found sudan grass and soybeans giving excellent foliage production as a combination summer cover. In this same orchard, the summer combination is followed by rye and vetch for overwinter.

While this system has been tried and proved in the South, a visit to northwestern orchards in search of cover crop practices would probably result in discovery that alfalfa is a popular permanent or semi-permanent cover, made popular because of its ability to last year after year and for other characteristics which are described in subsequent paragraphs.

Still other growers would easily be found who are using rye grass as a winter cover and cultivating during the summer. Then in another section, such as New York, it's apparent that orchardists are mainly following a sod or sod mulch system.

But interspersed through every fruit area one is likely to find any one of these soil management methods in use. Diversity of types, combinations, and methods is the rule rather than the exception when applied to orchard covers.

During the past few years a long list of cover crops have been on trial. Many have appeared only in experimental plots, to be discarded later for any one of a dozen reasons. Through this constant experimentation and actual usage by orchardists, there has survived a group of crops that appear destined for constant planting in the nation's orchards. These are sharply divided into two classifications—legumes and non-legumes, summer and winter. To be separated, too, are the permanent covers, like alfalfa, from those which last only a summer or winter season.

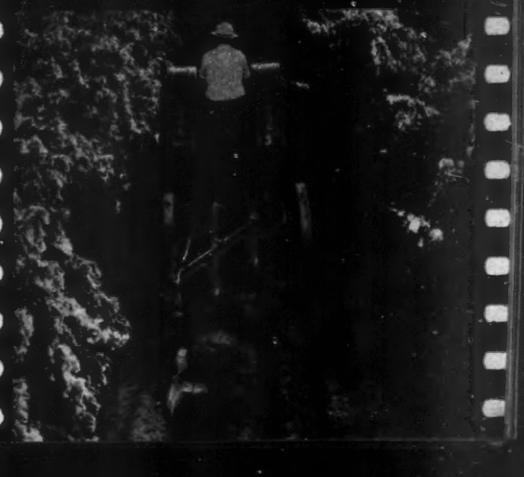
Popular summer covers include the grains, sudan grass and the annual legumes. Those frequently used for winter are alfalfa, vetch, and rye grass. Through conversion of nitrogen from the air into soil nitrates by bacteria which collect in nodules on their roots, the legumes act as conditioners of soil chemical properties as well as providers of green manuring. But among the non-legumes are some of the most popular cover crops, heavy yielders of valuable mulch and green manure for turning under.

While some of the newer cover crops have been especially popular in the South, namely, crotalaria, lespedeza, and Austrian peas, their use has been mostly sectional. Lespedeza, in particular, has performed well for many growers. Where introduced in mid-northern areas crotalaria, a legume first tried in Florida, has produced heavy growth. However, this crop needs a long growing season and should be planted early in northern sections at the rate of 10 pounds of seed to the acre.

Selection of a cover crop should be made entirely on its ability to grow abundantly in any given locality. Legumes are preferred, but if they do not grow well, it is better to use non-legumes, supplementing them with nitrogen or complete fertilizers.

A popular perennial legume is alfalfa in sections where it does well. By growing deep roots, this plant is able to better endure drought and when once established, annual or biennial reseeding is unnecessary since it lasts for several years. One Indiana grower planted alfalfa in his orchard when it was three years old. Today, the orchard, now 14 years old, is growing and producing well and the original alfalfa is supplying an abundance of organic matter. This illustrates a use of alfalfa as grown in

*(Continued on page 12)*



**Abundance of foliage produced by crotalaria, one of the new legume cover crops, is shown in illustration at top of column. This plant was first introduced and used in the South.**

**Since the function of a cover crop is to supply organic matter, one of the important jobs in making this possible is mowing. This equipment is also frequently used for sod-mulch system.**

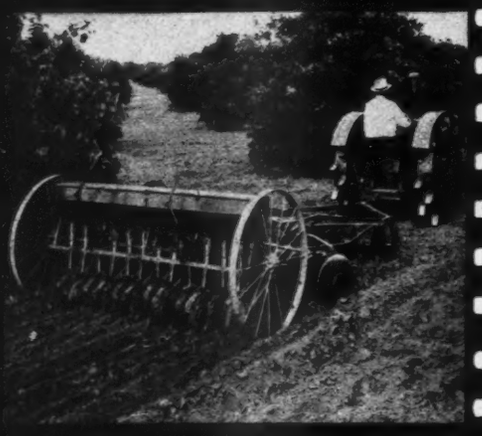
**Growers often shred cover crops by going over them with a sharp disk. This operator has broken soil between rows but prefers to disk lightly about the trees, probably to allow reseeding.**

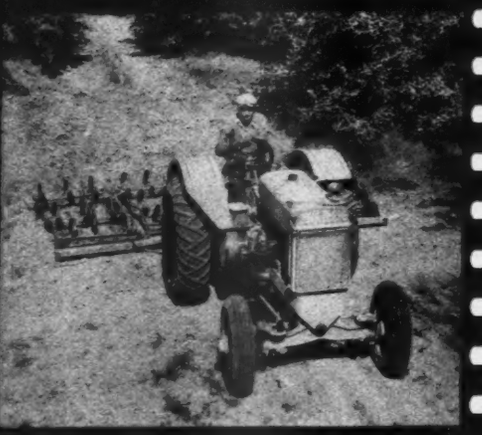
**If physical properties of fruit soils are to be bettered by growth of cover crops and addition of organic matter, the green manuring must be incorporated into soils as shown here.**

**In small-fruit plantings as well as orchards, soils must be properly prepared for cover crop seeding. This vineyard is being plowed for a cover crop seedbed prior to use of other implements and the final seeding.**

# COVER CROP CULTURE

*(Continued from page 11)*





many orchards—that of a permanent sod type of cover. Ten pounds of alfalfa seed per acre gives a good stand.

Particularly adapted to light loam or sandy soils, winter or hairy vetch will usually cover the ground before winter when planted in late summer or early fall. It grows in cool weather, forming a mat over the soil. A combination of vetch with rye, rye grass, or oats has proved an excellent cover, particularly for overwintering. Using 15 pounds of winter vetch and 15 pounds of rye grass to the acre on a sandy soil, an Ohio grower reports that he secured good cover.

Growth is turned under in mid-spring, preferably before spring rains stop so that as much moisture as possible is carried into the soil with the crop foliage. If the fall planted vetch is not turned under before summer it will partially reseed itself and a volunteer stand may be grown the following year. This system, however, usually results in poor, uneven stands, so annual reseeding is recommended wherever possible. Where used alone vetch is seeded at the rate of one-half to one bushel an acre.

Another legume which makes a good semi-permanent or permanent cover in orchards is biennial white clover. It will do well on soils too poor for alfalfa.

Crimson and red or mammoth clovers have given good results where it is possible to obtain healthy stands. Red clover is sown at the rate of 12 to 15 pounds per acre and crimson clover 15 to 20 pounds.

Soybeans and cowpeas have enjoyed greater popularity in southern areas than in the North because they kill at first frost. Per acre seeding for soybeans is one to one and one-half bushels; for cowpeas, one and one-half to two bushels.

Rye, wheat, barley, and oats are often planted as pure stands or mixed with vetch. Being non-legumes, these crops do not add to the soil nitrogen supply, but are helpful for preventing erosion, snow drifting and for increasing organic matter content. Best seeding of these grains is one and one-half to two bushels per acre.

Principally because it is a good producer on poor soils, buckwheat, a non-legume, is frequently used to improve soils so legumes can be grown. Although killed by the first frost, it is a good conditioner for heavy soils. A bushel to the acre gives good stands under most conditions.

In young orchards where no shading occurs, millet makes an excellent cover. It produces a large bulk of organic matter on a variety of soils. From 25 to 40 pounds of seed are usually sown per acre.

Dwarf essex rape and cow turnips, besides having large root systems which penetrate deep into the soil, grow late in the season and form an abundance of foliage for plowing under. Three to four pounds of these seed are sown to the acre.

After orchard cover crop seedbeds have been prepared, drilling is the most satisfactory method of seeding. It distributes the seed more evenly and places it at a more uniform depth. If seed is to be broadcast, the soil is given a shallow cultivation after packing. A spring-tooth harrow has proved most satisfactory for this work. After cultivation broadcast the seed as evenly as possible and follow with a brush drag or light spike-tooth harrow with teeth set at an angle. This operation is followed by cultipacking or a second harrowing.

Since abundant foliage production is desired for any cover crop, it may be necessary to fertilize for maximum growth. For legumes, liming is needed if soils are acid. Inoculation should be practiced if best results are to be obtained with the legumes. In trials at a midwestern experiment station, 1575 pounds an acre of an air dried hay were obtained in an orchard where no fertilizers had been applied between the trees. Where 200 pounds of cyanamid per acre had been broadcast, the acre yield was 4000 pounds. Relatively slight added cost, this experiment shows, can result in more than doubling humus production of cover crops.

**One of the last steps in cover crop seedbed preparation is dragging. This grower stands in back of his tractor steering wheel to better view the area being worked before sowing seed.**

**Cover crops, in order to prevent them from robbing trees or small fruit plants, must be supplied with water for maximum growth. This outfit prepares land for furrow type of irrigation.**

**Best results are obtained when cover crops are drilled in. Besides giving better stands, this method allows more uniform distribution of seed and exact fertilizer placement.**

**Where only light soil working is necessary, the spring-tooth harrow shown here gives a good seedbed for the covers, especially in lighter soils where its action results in soil pulverizing.**

**Hard crusting caused by irrigation must be broken before planting cover crops. This tractor and disk outfit prepares the soil ahead of the drill resulting in a smooth seedbed which will provide best growth conditions.**

# APS

A PAGE CONDUCTED IN THE INTERESTS OF THE AMERICAN POMOLOGICAL SOCIETY

## COMING—ANNUAL CONVENTION

THE 54th convention of the American Pomological Society will be held at Chattanooga, Tenn., with the Tennessee State Horticultural Society as the host society, on November 30, December 1 and 2. These dates were selected since they do not conflict with the scheduled meeting dates of near-by state horticultural society meetings. The program will be extensive and varied, and the topics will deal with problems peculiar to the general region, as well as with problems which are more general and national in scope.

Keynote items on the program will include the following general topics:

1. Low grade apples—how can these be kept out of competition with standardized grades?

2. Extending markets for deciduous fruits. Last year the National Chain Store merchandising of apples was of great assistance in the orderly marketing of a large crop.

3. Better grading, better packages, and standardized packages. To get good apples to market in prime condition is largely a problem of containers.

4. A regional laboratory to develop new products from low grade deciduous fruits. Recent announcements indicate that a Federal regional laboratory will be established in the Northeast section of the United States for this purpose.

5. Spray residues. The U.S. Department of Health is conducting intensive research to determine the facts relative to the public health problems involved in the use of lead arsenate as an insecticide. It is hoped that a preliminary report concerning this work will be ready at the time of the meeting.

6. New fruit varieties. Much interest centers here. An exhibit of new varieties is being planned.

7. The pecan industry in the South.

8. Wilder Medal awards. All those who have new varieties are eligible to compete for the Wilder Medal awards of the American Pomological Society. For full particulars in regard to these awards, write to Prof. C. P. Close, College Park, Md., who is chairman of the committee on Wilder Medal awards. He also is chairman of the new fruits and nuts committee.

Neighboring state horticultural societies are invited to send delegations to Chattanooga to participate in the meetings. This, therefore, is the fourth annual meeting of the APS which can be regarded as a regional horticultural meet.

A fruit show has always been a feature of these conventions. Prof. A. N. Pratt, horticulturist of the Tennessee State Horticultural Society, Nashville, has been placed in charge of the fruit show.

## SALES PROMOTION AND ADVERTISING

The National Association of Food Chains, 726 Jackson Place, Washington, D.C., issued a report on the sales promotion efforts to extend the market for the 1937 crop of apples. This report indicates that the food chain stores are wide awake to the possibilities of greatly stimulating the sales of fruit through better merchandising methods. The following is taken directly from this report:

**Suggestions to Improve Distribution of Apples**

At the conclusion of the campaign members of producer stabilization committees and executives of chain food store companies were asked:

"What are your suggestions of steps which may be taken to improve the distribution of apples in the future (a) by producers, and (b) by distributors?"

On the part of the question as to what distributors (retailers) may do:

1. Sixty-four per cent of the producers' reports and 80 per cent of the chain food store executives' reports said:

Retailers should merchandise apples so as to create most favorable consumer reaction and to stabilize producer market, including suggestions:

—To feature proper varieties at proper seasons;
—To handle so as to preserve quality, such as elimination of rough handling by trucks and warehouses, more rapid handling or holding in cold storage, displays which keep apples sanitary, attractive looking, and preserve good condition for consumer;
—To sell apples by grade, avoiding mixing varieties and grades, especially cooking and eating varieties;
—To educate sales personnel about apples, i.e., different varieties, their uses, etc.;
—To encourage consumers to make larger unit purchases of better keeping varieties;
—To state grades in advertising;
—To keep store managers posted on varieties needing extra merchandising assistance;
—To offer no damaged or deteriorated fruit.

2. Fifty-six per cent of the producers' reports and 53 per cent of the chain food store executives' reports said:

Retailers should co-operate with organized producers on sound marketing plans, including suggestions:

—For more advertising of apples and continuation of promotional efforts;
—For consumer studies through stores—both fresh and canned apples—short and long range outlook;
—For featuring local apples;
—For improvement of handling methods and practices;
—For promotion of sales early in season in big crop years;
—For support of regulations to limit sale of low grades.

3. Thirty-six per cent of the producers' reports and 33 per cent of the chain food store executives' reports said:

Retailers' purchasing policies should be governed by best interest of producers and consumers, including suggestions:

—To buy in such quantities that they will reach consumers in good condition;
—To buy only good grades;
—To discontinue trading with truckers who handle only low grades;
—To avoid making offers below current market;
—To try to arrange for steady supplies throughout season with responsible growers and their organizations rather than taking odd-lots of various varieties of varying quality;
—To assist producers to maintain cost of production prices.

On the part of the question as to what producers may do:

1. Sixty-three per cent of the producers' reports and 42 per cent of the chain food store executives' reports said:

Producers should improve the grading and packing of apples, including suggestions:

—To properly time picking and properly handle fruit to reduce bruising and improve keeping quality;
—To simplify and standardize grades to enable mass distributors to buy larger quantities of fruit of uniform quality;
—To improve orchard practices;
—To produce fewer and better varieties.

2. Seventy per cent of the producers' reports and 68 per cent of the chain food store executives' reports said:

Producers should develop practicable means to sell in fresh fruit markets only apples which will give consumer satisfaction, including suggestions:

—For education of producers to discontinue selling culls (and other low grades in years of big production) to peddlers, truckers, and at roadside stands;
—For development of new uses for low grades;
—For storing only better grades;
—For marketing agreements.

3. Forty-eight per cent of the producers' reports and 32 per cent of the chain food store executives' reports said:

Producers should develop wider markets for apples, including suggestions:

—For wider distribution in smaller markets;
—For marketing of the different varieties during their proper seasons;
—For furnishing consumers with only good, satisfactory merchandise, irrespective of size of crop;
—For co-operation with organized retailers and other distributors through more contacts and better understanding of mutual problems;
—For studies of consumer preference;
—For study and possible development of refrigerator-size consumer package;
—For increasing and consistently carrying forward a broad program of advertising apples, including dealer service and consumer education; this program to be co-ordinated on a national basis although possibly regionalized in operation;
—For using attractive labels and containers."

H. L. Lantz
SECRETARY

# STATE NEWS

IDAHO—The Idaho Fruit and Vegetable Advertising Law of 1937, which has been in litigation since it became operative in May, 1937, has been declared valid by the State Supreme Court.

The law imposes a one cent per cwt. tax for advertising purposes on apples, prunes, onions, and potatoes, produced in the State of Idaho and marketed outside the State. The fund to publicize Idaho's products and widen consumer outlets is administered by an eight-man board known as the Idaho Fruit and Vegetable Advertising Commission, headed by Commissioner of Agriculture Guy Graham.

It is estimated that more than $125,000 will be available annually through the act to advertise Idaho's four agricultural products. The commission has approved plans for an immediate campaign on tree ripened prunes and a campaign on Jonathan apples.

NEBRASKA—Apple marketing during the 1938-39 season, so far as this State's growers are concerned, will not be the problem that it was in 1937-38. The crop in the states to the south of us is short and already several carloads of apples have been sent to southern markets.

Harvest season is a little earlier than normal, which means that the marketing of apples from the orchard will be prolonged over a longer period than it was last year. There will be fewer apples to go into storage than last year. Naturally growers are optimistic.—E. H. HOPPERT, Sec'y, Lincoln.

MAINE—A canker disease on apple trees that has been a cause for concern in the past two years has been identified by M. T. Hilborn of the Maine Experiment Station, as Northwest apple-tree anthracnose, and the identification confirmed by S. M. Zeller of the Oregon Experiment Station, Corvallis. Highly destructive on the West Coast, the disease shows up there as a sort of bull's-eye rot of the fruit in storage. Almost complete control is attained there with Bordeaux mixture 4-4-50 applied just after apple harvest.

Although not reported before other than on the West Coast, it has already been observed in Maine orchards at Buckfield, Kents Hill, Greene, Monmouth, East Waterford, Poland, and Orono. Experiment and experience will tell whether the control method found successful in the West will hold this disease in check here.—J. H. WARING, Sec'y, Orono.

TENNESSEE—S. N. Varnell, a commercial peach grower in the Cleveland section since 1904, says that only four times has he had complete crop failures—1911, 1916, 1917, and 1927. This year he started packing Elbertas on July 7—the earliest date in 34 years.

A. Campegna, a grower near Memphis, is much interested in some of the new grape introductions. "Those darn Concord grapes ripen one at a time," he says. He plans to replace them.

April frosts completely destroyed John Mir's apple crop at Hendersonville, the first complete failure since the orchard was planted in 1903. He has some rare varieties (for this section), such as Wolf River, Nero, and Winter Pearmain. He explained them by saying that they and a half dozen other varieties were sent on his order for 1100 Duchess when he set his orchard. Evidently this nurseryman was "right fresh out" of Duchess, because he didn't send Mr. Mir any. Note: This nurseryman is not in business any more.—A. N. PRATT, State Horticulturist, Nashville.

KANSAS—The 1938 apple crop for Kansas and the Middle West is approximately one-half smaller than last year's crop. Cash returns for current sales have not been greatly above last year's prices, growers report (amateurish merchandising technique?).

L. M. Mason, extensive fruit grower and farmer of near Wichita, and James N. Farley, a leadjng orchardist of near Hutchinson, each have taken advantage of shelter-belt plantings of forest trees to be used as windbreaks. T. Russell Reitz, State director of the shelter-belt project, points with pride to the work established on these farms.—GEO. W. KINKEAD, Sec'y, Topeka.

CALIFORNIA—Almond experts and dealers who have seen them predict that the two new soft-shelled almond varieties recently released for general distribution will soon be the leading varieties on the West Coast.

Developed by Milo N. Wood, pomologist, Bureau of Plant Industry, U.S.D.A., and W. P. Tufts, pomologist, University of California, both varieties have been under close observation by these scientists for years. They were selected from original crosses made between the Harriott and Nonpareil varieties.

The Jordanolo is a thrifty, vigorous grower with heavy foliage and appears to bear heavy crops every year. The nuts in the shell resemble the Ne Plus Ultra and have an attractive yellow color. It is believed that due to the large size, good quality, and excellent appearance, the Jordanolo kernels will command a high price.

The Harpareil is somewhat similar to the Jordanolo but the nuts are slightly inferior in quality. It is also a heavy bearer but is not considered as regular a bearer as the Jordanolo. The kernels blanch well but have a tendency to produce doubles. The Harpareil is more susceptible to brown rot than the Jordanolo.

PENNSYLVANIA—Rodent control in Keystone State orchards has always been a problem. In one orchard of 1800 trees 30 years old 600 were completely girdled by pine mice. Bridge grafting proved of little value, for the pine mice removed the bark from practically all the bridges. A poison bait of starch-coated wheat with strychnine as an active poison was then placed in the runways, burrows, and in poison bait stations.

Following this satisfactory treatment eight years ago bait stations were placed in orchards throughout the State, but the practice did not result in the desired reduction of injury. While many of the mice working on the surface were killed, more injury occurred in orchards than a good grower preferred.

A change statement by a grower, that if anyone were anxious to find pine mice the place to look for them would be in cornfodder, seems to have given us the solution to our rodent problem.

Bundles of cornfodder tied with wire are scattered throughout the orchard at intervals of every three or four trees, especially in the lower sections where mice are known to exist. The fodder is permitted to remain in the orchard undisturbed for a week or two, after which the poison wheat bait is placed under the fodder.

Where used the method has proved very satisfactory. If cornfodder is not available, a poor grade of hay or even weeds produced in the orchard would undoubtedly make satisfactory bait stations.—J. U. RUEF, Sec'y., State College.

WISCONSIN—Last year for the first time the ladies were given a place on the program during the annual convention of the Wisconsin Horticultural Society. Interest was so great that a special program is again being provided during the 1938 convention, November 3-4. Premiums will be awarded the ladies on dinner tables decorated with fruit centerpieces. The program will be largely on the use of fruits in home cooking.

More than six inches of rain during the first week in September hampered orchard work. Reports indicate an apple crop 50 to 60 per cent of normal but with fruit of excellent size and color.—H. J. RAHMLOW, Sec'y, Madison.

MICHIGAN—Through voluntary contribution of one-half-cent a bushel on their 1938 crop, Michigan Apple Institute members will match funds of $4500 appropriated by the State for again advertising Michigan apples.

An attractive market package for exclusive use of institute members is being considered for official adoption.

Last year's officers will serve during the 1938-39 seassn. C. C. Taylor, Albion, is president; R. L. Evarts, Metamora, vice-president; R. J. Martin, Bangor, secretary-manager; and H. D. Hootman, East Lansing, treasurer.

MONTANA—Early September saw the start of early apple harvest in both Clark Fork and Bitter Root valleys. The apple crop will be approximately 15 per cent larger than last season, although some hail and more than normal scab damage has occurred in sections.

An excellent second strawberry crop was still being marketed in quantities in September.—GEO. L. KNIGHT, Sec'y, Missoula.

RHODE ISLAND—A successful fruit tour into Massachusetts was recently staged by Rhode Island Fruit Growers Association, co-operat-

ing with the Extension Service. Among the interesting things seen was a huge land breaking plow at the orchards of H. A. Taylor of Millbury. Cordwood from several acres was cut off last winter and the field plowed this spring, stumps and all. Stumps were simply pulled off and heaped up for burning. Ground was in shape to be planted next year.

The association is staging a drive for support of the New York and New England Apple Institute. Committees are following up circular letters. A large sign-up is anticipated.

One of the heaviest Baldwin crops in years is soon to be harvested. Crops are in excellent condition in most orchards.—E. P. CHRISTOPHER, Sec'y, Kingston.

INDIANA—The annual student-sponsored Purdue Horticultural Show will be held November 11-12. In addition to the fruits and vegetables, a nut class has been added to increase interest in nut culture in the State.

Two more products have been added to the gradually widening field of fruit and vegetables being marketed under the Hoosier Seal of Quality. In addition to apples, peaches, strawberries and cantaloups, potatoes and canned tomatoes are appearing this year under this distinctive label.—R. L. WINKLEPLECK, Sec'y, Lafayette.

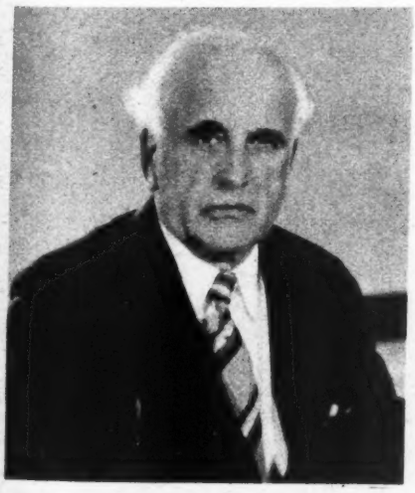
NEW YORK—Jay Gelder of Chazy operates a roadside stand in the Champlain Valley which has become recognized as one of the really successful enterprises of its kind in the East.

To give some idea of the volume, the first year business amounted to $6,000, the second $12,000, the third $25,267, and the fourth $32,271. As for prices, in 1933 the average price of apples at the wayside market was $1.66, in Elmira $1.63, and in New York $1.47. Net return at the wayside was $1.25, in Elmira $1.07, and in New York 84 cents.

Mr. Gelder says: "The most important thing in making a sale is service and courtesy. Treat your customer as if you were inviting a guest to your house. When prospective customers come in we give them a drink of cider and they often take a jugful home."—H. B. TUKEY, Geneva.

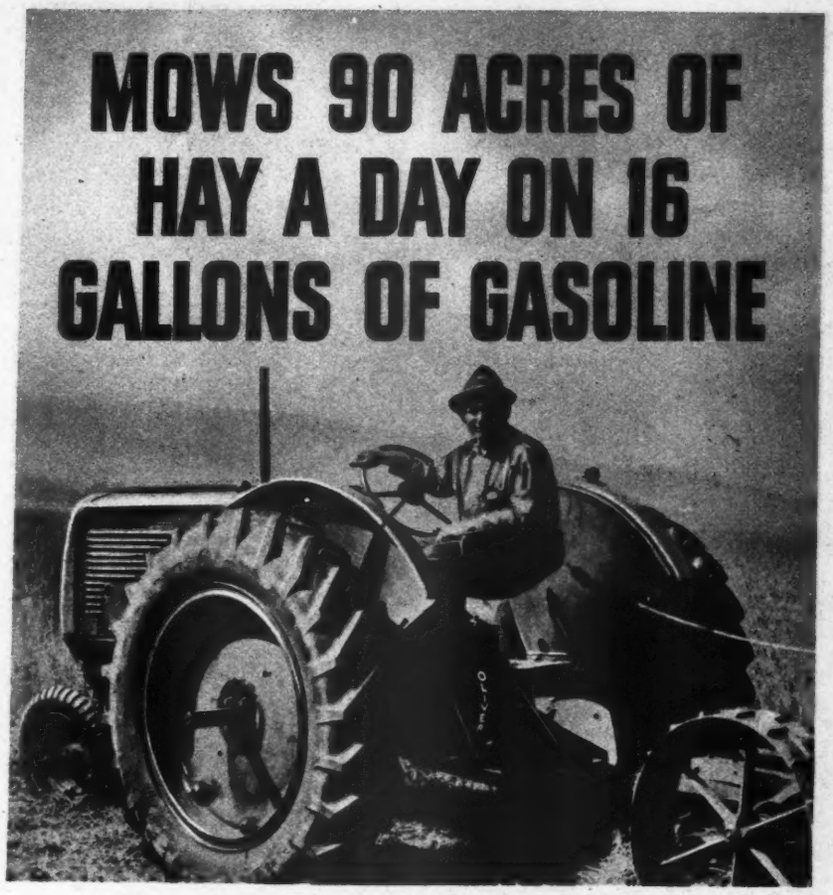
MINNESOTA—A better marketing set-up for the 1939 crop, with anticipated greater returns to growers, looms on the horizon of Minnesota berry growers as a result of low prices received for the 1938 crop. An open meeting of the State-wide Committee on

(Continued on page 19)



Just 42 years ago, J. C. Blair, above started serving Illinois fruit growers by visiting them on a bicycle, later in a horse and buggy. For 38 years, Prof. Blair has been head of the Department of Horticulture at the University of Illinois. Recently he was appointed Dean of the university's College of Agriculture, director of the experiment station, and director of the Illinois Agricultural Extension Service. He will continue as head of the Department of Horticulture.


# MOWS 90 ACRES OF HAY A DAY ON 16 GALLONS OF GASOLINE



**"FROM NOW ON it is high compression and good gasoline for me" says Louis Buzzine, who farms 3,000 acres near Petaluma, Cal., with two high compression Oliver "70" tractors.**

MR. BUZZINE put a new streamlined wallop in that old saying about making hay while the sun shines when he changed to high compression tractors and good gasoline. He made 28% more hay in a day and he used 27% less fuel. Here's how he compares his two high compression Oliver 70's, burning regular-grade gasoline, with his two low compression tractors, burning low-grade fuel:

"I can truthfully say I am sold on high compression and good gasoline. As the old saying goes, 'the proof of the pudding is eating it' and I have had plenty to eat.

"During the course of farming 3,000 acres of hay land, we pull 14 feet of mowers. With the two low compression tractors operating a 10-hour day we burned 22 gallons of low-grade fuel, mowing 70 acres of hay, pulling mowers in third gear. With the two high compression Oliver tractors operating a 10-hour day we burned 16 gallons of gas, mowing 90 acres of hay, pulling mowers in fourth gear. Besides this, the tractors using low-grade fuel consumed half a gallon of motor oil between changes whereas the gasoline tractors consumed none.

"I have learned that low first cost does not mean cheap operating cost."

To lower your operating costs, make sure the next tractor you buy has been designed to burn good gasoline (containing tetraethyl lead) efficiently. This means a high compression cylinder head or pistons and a "cold" gasoline type manifold. In your present tractor you get added power and economy by installing "altitude" pistons or a high compression cylinder head, changing the manifold setting or the manifold to the "cold" gasoline type, and using regular-grade gasoline (containing tetraethyl lead.)

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Write today for FREE illustrated 24-page booklet "How to Get More Tractor Power." It tells you: How to Reduce Tractor Costs. Why Some Fuels Produce More Power. How High Compression Works. How to Do More Work in the Same Time. Send a penny postcard now to Dept. TD-6, Ethyl Gasoline Corporation, Chrysler Building, New York, N. Y., manufacturer of anti-knock fluids used by oil companies to improve gasoline.

**IT PAYS TO BUY GOOD GASOLINE FOR CARS, TRUCKS AND TRACTORS**

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Here's another example of the benefits of planting fruit trees with PIC Emblem-Protected Peat Moss. These peach trees were set out in April 1937. Photos taken June 1938 show marked difference in growth between tree receiving peat moss treatment and other.

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Emblem-Protected

FRUIT TREES
GROWN BY VIRGINIA'S LARGEST GROWERS
*Offered at considerably reduced prices.*

500,000 PEACH in a large assortment of varieties and sizes. Buds cut from bearing orchards, assuring planters of trees true to name.

300,000 APPLE in the New Double Red Strains, as well as in the most popular standard varieties.

SMALL FRUITS of all kinds, as well as a complete stock of Ornamental Plant Material.

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ARE
MONEY MAKERS
Our own berry sales brought from $900 to $1700 per acre. Be the first to offer this marvelous berry to your market and let us help you cash in on this new money-making opportunity.
Write for our new 32-page berry booklet giving you planting, cultural and picking information on the Boysenberry.
Knott's Berry Place, Buena Park, Calif.

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FRUIT TREES
SCARFF'S "Best" new and standard varieties. Nearly 50 years of testing and growing in famous Miami Valley. Newest raspberries: Taylor and Sherry, largest reds; Indian Summer, a large and profitable ever-bearer; Sodus, heaviest yielding of all raspberries. Large Red Lake Currants, Pearman Gooseberries, Whitesbog Blueberries, Thornless Youngberries, Boysenberries. Sensational New Fall Bearing Cherry. New Seedless Pear, apparently blight resistant-Bartlett type. "Hardee" Frost Proof Peach. New low prices for commercial planters. Write for complete Catalog and prices.
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Be the first to raise CULTIVATED BLUEBERRIES. The coming sensation. Very ornamental. Exquisite white blossoms; leaves change from green to red; grows 6 ft. tall. Eat delicious jumbo sized berries with cream. Two to four bushes will supply average family with mouth-watering blueberry pies all season. Fully described in our fall catalog. Also read bargains in fall bulbs, Phlox, Roses, Shrubs, Evergreens. Fruit plants of all kinds. Write now.
Whitton-Ackerman Nursery, Box 12 Bridgman, Mich.


## PRELUDE TO PLANTING

*(Continued from page 8)*

where he thinks the stake should go. The wire is then held to the next stake in the row and second segment struck crossing the first. Where these two segments cross is the location of a tree in the second row. Likewise the succeeding trees and rows are established.

"No matter how carefully aligned the stakes may be, a planting-board should be used when digging the tree holes and in planting, to insure the trees being located exactly where the stakes stood. This board is about four feet long and six inches wide. A V-shaped notch is sawed in the center of each end. Then, in the center of the board and exactly midway between the notches in the ends, a hole is bored with an auger or large bit, and in turn, from one of the outer edges of the board and exactly opposite the hole in the center, a section of wood is sawed out between the hole and the outer edge, leaving a slot extending from the margin to the center of the board.

"Before beginning to dig a hole for a tree, place the planting-board on the ground with the stake marking the location of the tree in the slot exactly where the auger hole was bored. Next drive two short wooden pegs in the ground closely in the V-shaped notches in the ends of the board. The board then may be removed and the hole dug. The planting-board is then readjusted in its former position with the pegs engaged in the V-shaped angles at the ends. A few shovelfuls of the fine top soil are thrown in the bottom of the hole and the tree placed in position with its stem in the slot at the center of the board and the roots well spread out, shifting the roots one way or another until the body of the tree stands in perpendicular position exactly where the stake formerly stood. A few shovelfuls of fine soil then may be worked in beneath, among and around the roots and the planting-board removed."

Almost phenomenal growth has occurred when young trees are set with peat moss as compared with soil alone. Dr. H. B. Tukey, who has conducted tests with peat moss planting at the New York Experiment Station, recommends the use of a pail of dampened peat moss for each tree. The moss is mixed with the soil as the hole is being filled and provides better aeration and moisture retention. On soils having hardpans, use of dynamite at planting time will crack the hardpans allowing for better drainage. Dynamite is valuable, too, for loosening heavy types of soil for tree planting. Manufacturer's directions must be carefully followed when using the explosive.


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THE
Mammoth Sweet Nectarberry
Heaviest yielding berry we've ever grown
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BLACKBERRIES GRAPE VINES
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Free Catalog Special Fall Prices
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A complete line of trees which are certified for trueness to name. Send at once for your copy of our Home and Orchard guide. Also send us your list of trees that you are needing and we will give you special quotations.
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of UNEXCELLED QUALITY; 500,000 Peach; 200,000 Apple, one and two year; thousands of Pear, Plum and Cherry; hundreds of thousands of small Fruit Plants. Large and small planters are invited to write for our latest free FALL Price List announcing the greatest price reduction on fruit trees ever made in our history. It pays to plant Bountiful Ridge trees and plants.
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FRUIT TREES
Peaches, Pears, Apples, Plums, etc. Excellent stock. Write for catalog. Box "A," The Storrs & Harrison Company, 84 years at Painesville, Ohio.

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100 acres Established 1889
Apple, pear, plum, prune, cherry, and peach trees. Trees guaranteed true to name; stock vigorous and sturdy with fibrous root systems. Let us supply your fruit trees this season. Quotations gladly given.

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The first and only peach granted a patent on the proven claim of cold resistance and hardiness—all the good qualities of Elberta plus bud and wood hardiness
Today's Outstanding Peach—Write for Literature
THE FRENCH NURSERIES
At CLYDE, OHIO Since 1863

T. B. WEST & SON
MAPLE BEND NURSERY
Perry, Ohio Box 41
*"West Has The Best"*
of FRUIT TREES, PLANTS and ORNAMENTALS
*Send for Catalogue*

## CALENDAR OF COMING MEETINGS and EXHIBITS

Oct. 25-27—Minnesota State Horticultural Society and Minnesota Fruit Growers Association annual meetings, Red Wing.—J. D. Winter, Sec'y, Growers Assn., Mound.

Nov. 3-4—Wisconsin State Horticultural Society annual meeting, Raulf Hotel, Oshkosh.—H. J. Rahmlow, Sec'y, 1532 University Ave., Madison.

Nov. 10-12—Iowa Fruit Growers Association 27th annual convention, in connection with 73rd annual meeting Iowa State Horticultural Society, Savery Hotel, Des Moines.—R. S. Herrick, Sec'y, State House, Des Moines.

Nov. 30—Dec. 1—South Dakota State Horticultural Society winter meeting, Radison Hotel, Aberdeen.—W. A. Simmons, Sec'y, Court House, Sioux Falls.

Nov. 30-Dec. 1-2—Tennessee State Horticultural Society annual meeting, in conjunction with American Pomological Society annual convention, Hotel Patten, Chattanooga.—G. M. Bentley, Sec'y, Knoxville.

Dec. 1-2—Kansas State Horticultural Society annual meeting, Topeka.—Geo. W. Kinkead, Sec'y, Topeka.

Dec. 2-3—Montana State Horticultural Society annual meeting, Kalispell.—Geo. L. Knight, Sec'y, Missoula.

Dec. 6-8—Michigan State Horticultural Society annual meeting, Civic Auditorium, Grand Rapids.—H. D. Hootman, Sec'y, East Lansing.

Dec. 6-8—Oregon State Horticultural Society annual meeting, Eugene.—O. T. McWhorter, Sec'y, Corvallis.

Dec. 6-8—Virginia State Horticultural Society 43rd annual meeting, Winchester.—W. S. Campfield, Sec'y, Staunton.

Dec. 7-9—Nebraska State Horticultural Society annual meeting, Plant Industry Building, Agricultural College Campus, Lincoln.—E. H. Hoppert, Sec'y, Lincoln.

Dec. 7-9—New Jersey State Horticultural Society annual meeting, Hadden Hall, Atlantic City.—A. J. Farley, Sec'y, New Brunswick.

Dec. 14-16—Peninsula Horticultural Society annual meeting, Dover, Del.—T. F. Manns, Sec'y, Newark, Del.

Jan. 3-4—Maryland State Horticultural Society annual meeting, Frederick.—A. F. Vierheller, Sec'y, College Park.

Jan. 4-6—Massachusetts Fruit Growers Association annual meeting, in conjunction with Union Agricultural meetings, Worcester Auditorium, Worcester.—W. R. Cole, Sec'y, Amherst.

Jan. 10-12—Indiana Horticultural Society annual meeting, Purdue University, Lafayette.—R. L. Winklepleck, Sec'y, Lafayette.

Jan. 10-13—New York State Horticultural Society annual meeting, Rochester.—Roy P. McPherson, Sec'y, LeRoy.

Jan. 17-19—Maine Pomological Society annual meeting, Augusta.—E. L. White, Sec'y, Bowdoinham.

Jan. 17-19—State Horticultural Association of Pennsylvania annual meeting, in connection with Pennsylvania Farm Show, Harrisburg.—J. U. Ruef, Sec'y, State College.

Jan. 25-27—Eastern meeting New York State Horticultural Society, Kingston.—Roy P. McPherson, Sec'y, LeRoy.

Feb. 1-2—West Virginia Horticultural Society 46th annual convention, Market House, Martinsburg.—Carroll R. Miller, Sec'y, Martinsburg.

Illustration shows R. C. Metzgar, Wapato, Yakima Valley, Washington, in his Redelberta orchard of 275 trees. Mr. Metzgar writes: "They show lots of deep red color. Redelberta on the market 10 days ahead of Elberta."

REDELBERTA

U. S. Plant Pat. No. 232
Trade Mark Reg.

PEACH

*"Lots of Red Color—"*
*"Ten Days Ahead of Elberta"*

**BETTER VARIETIES** *PAY!*

These improved, highly colored fruits have been thoroughly tested and were introduced by our Company. They are **MAKING MORE MONEY FOR GROWERS.** They are also finer, better varieties for your **home orchard.**

**RICHARED Delicious**—Trade Marked. Lots of deep red color. One of America's leading orchard apples. Nearly 100% Extra fancy for color.

**SHOTWELL Delicious**—U. S. Plant Pat. No. 90. Trade Marked. The earliest-coloring "solid red." Delicious.

**BLACKJON**—Trade Marked. 97% Extra Fancy for color. A finer better Jonathan.

**BLAXTAYMAN**—Trade Marked. A Bright, Richer, Deeper-Red Stayman.

**BLACKMACK**—Trade Marked. Early-coloring, all-red McIntosh that has produced 90% Extra Fancy for Color.

**RILAND APRICOT**—U. S. Plant Pat. No. 74. Trade Marked. New. Large, highly colored fruit. Brings top prices. Splendid fresh fruit, for canning, drying, shipping.

**Write for C. & O. Catalog. FREE**

Write also for free folder fully describing **REDELBERTA Peach.** Illustrated in full natural color.

**REDELBERTA is a bud-sport of the well known Elberta—with all the true Elberta characteristics and qualities in fruit and tree—but with EARLY, DEEP RED COLOR—AND FULLY TEN DAYS EARLIER RIPENING.**

Think!—A REAL Elberta—with lots of red color—on the market ten days ahead of ordinary Elberta!

The discoverer of REDELBERTA, Mr. Jay Perry, planted in the Yakima Valley, Washington, the first orchard of REDELBERTAS—now five years old. This season this young orchard produced several hundred boxes of beautiful, highly colored peaches—fully ten days ahead of Elberta. Two shipments of REDELBERTAS sold at $1.25 and $1.00 per crate respectively. Elbertas and Hales later arriving on the same market sold for 50c and 75c per crate respectively.

After several years of painstaking, careful checking and testing the C. & O. Nursery Co. has introduced REDELBERTA to the fruit world. This REDELBERTA with all the genuine Elberta qualities—plus fully double the early, deep red color—and earlier ripening and harvest season—promises to supplant ordinary Elberta in orchard plantings.

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*We ship everywhere and guarantee safe arrival.*

**COLUMBIA & OKANOGAN NURSERY CO.**
"The Wenatchee Nurseries"
**Wenatchee, Washington**

WASHINGTON'S OLDEST LARGEST NURSERY

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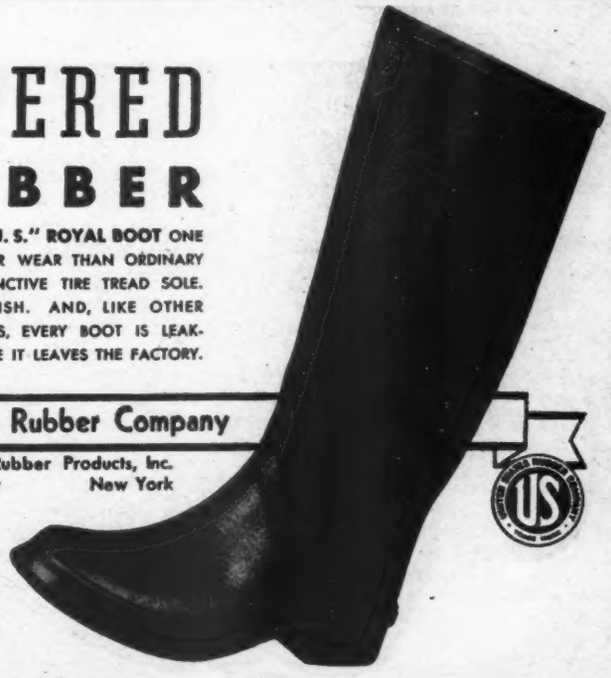
GIVES THE "U. S." ROYAL BOOT ONE THIRD LONGER WEAR THAN ORDINARY BOOTS. DISTINCTIVE TIRE TREAD SOLE. PIGSKIN FINISH. AND, LIKE OTHER "U. S." BOOTS, EVERY BOOT IS LEAK-TESTED BEFORE IT LEAVES THE FACTORY.



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ASK TO SEE THE NEW ROYAL RAINCOAT WITH PIGSKIN FINISH

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You can't tell the dependability of a well until you've tested it, but you can buy an Exide battery on faith. The Exide name has been the mark of dependability for more than 50 years, as shown by the reliance placed in these batteries by business and industry, and by millions of car and truck owners throughout the nation. You can be sure of honest battery value if you go to the dealer displaying the Exide sign.

FIFTY YEARS OF ACHIEVEMENT

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
*The World's Largest Manufacturers of Storage Batteries for Every Purpose*
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# NOW MR. BUG

*doesn't Dare*

Wise old Augustus Bug will have to starve amid plenty! Seriously, *Alorco* Cryolite does stop damage by codling moths, flea weevils, curculios and other chewing insects which attack both fruit and ground crops. And dusted or sprayed, the finer particles cover more area, stick better. Buy from your dealer, or write distributors for information. ALUMINUM ORE COMPANY, (*Sales Agent:* ALUMINUM COMPANY OF AMERICA, Pittsburgh, Pa.)

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Stark-Burbank Institute New Fruits Show officials, left to right: T. J. Talbert, judge; Paul Stark, Jr., manager; Glen Thomas, research director of the institute, and H. L. Lantz, judge.

## NEW PEACH-APRICOT CAPTURES HONORS

IN the town of New Castle, Colo., 75-year-old J. C. Sparks has for the past five years engaged in a search for new fruits as a hobby. From an apricot orchard near his home, he selected seven promising fruits and planted seed from them in his back yard.

Only one of the young trees developing from this seed showed promise of producing unusual fruit. The tree started to bear at an early age and the fruit was different from any apricot that Sparks had ever seen. The fruit is of large size with brilliant red and gold coloring of a quality peach, while its rich, golden flesh is that of an apricot.

Sparks reports that last year, even though most fruit blossoms were killed by frosts, his tree produced a fair crop, and this year the tree proved its heavy-bearing ability by yielding more than three bushels of "peach-apricots."

An opportunity to show his new fruit and to compare it with other new fruit introductions was presented Sparks with the announcement of the Stark-Burbank Institute of Horticulture New Fruits Show at Louisiana, Mo., August 18-20. The "peach-apricot" was one of the more than 500 new fruit type entries. Out of the array of new fruits, Judges T. J. Talbert, University of Missouri, and H. L. Lantz, Iowa State College, picked the new type from the Colorado back yard for sweepstakes honors, carrying a prize worth $300.

Plans are under way for testing the new fruit in various sections of the country. If tree and fruit withstand the experimental trials, which include hardiness, drought, and pest resistance, stock will probably be offered for general sale.

Of the more than 500 new varieties entered from all sections of the United States and Canada, 30 won awards. This first show was for summer fruit. Another new fruits contest will be held at Louisiana, Mo., November 10-12.

As in the summer show, for the fall and early winter ripening fruits, institute officials will award $1500 worth of prizes in addition to honor medal awards.

Entry blanks for the fall show are available and directors of the institute request that fruit be forwarded to Louisiana, Mo., in care of the show, as soon as it matures. It will be inspected and described and then placed in cold storage until start of the show, when judging will take place. Those in charge of the show suggest that fruit for entry be firm and shipped slightly before it ripens. They also ask that five or more specimens of each fruit type be entered if possible, but any number will be eligible. Opinions of the judges, during the show, will be final and no fruit will be returned.

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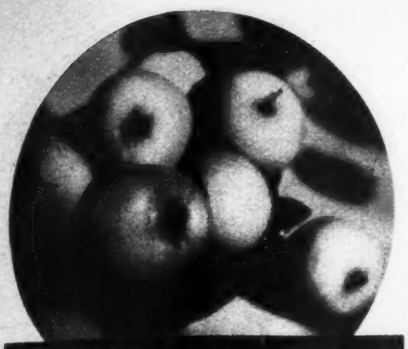

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**IT SWEETENS THE SOIL**

Granular AERO Cyanamid supplies nitrogen in combination with a large amount of lime, which sweetens the soil. No other nitrogen carrier on the market leaves such a beneficial residue.

**IT IS EASY TO APPLY**

Granular AERO Cyanamid is a dry, free-flowing material, ideally adapted to accurate broadcast distribution by hand or by machine.

*Write for Leaflet F-142*

AMERICAN CYANAMID COMPANY
30 ROCKEFELLER PLAZA NEW YORK, N.Y.


## STATE NEWS

(Continued from page 15)

Berry Marketing will be held on the morning of October 27 at Red Wing. This committee consists of the president and one other member from each co-operative berry marketing organization in the State, viz.:

Afton Farm Produce Association, Cuyuna Range Fruit Growers Association, Excelsior Fruit Growers Association, Head-of-the-Lakes Fruit Growers Association, Mildred Co-operative Poultry and Berry Association, and Minnetonka Fruit Growers Association.

Minnesota Fruit Growers Association and Minnesota Agricultural Experiment Station also are represented on this committee by two members each. Prof. W. H. Alderman, chief of the university Department of Horticulture, is chairman of the committee.—J. D. WINTER, Sec'y, Mound.

WASHINGTON—With the national apple crop estimated at 36 per cent below last year and the Northwest crop about normal, the number of markets in which Washington State apples will be advertised is being increased this year, according to an announcement by Claude M. Zediker, chairman of Washington State Apple Advertising Commission.

Advertising will appear in national household magazines during November, while newspaper, outdoor, and radio advertising in approximately 50 markets will be carried on during the fall and winter. Dealer service work is to be increased over last year. Store display units reproducing Washington apple varieties in direct color are being offered free to retailers.

According to the announced plans, advertising will be released as rapidly as supplies of Washington apples in the selected markets justify, with earliest releases scheduled in approximately 20 cities for about October 15.

IOWA—While the annual State Fair is held too early for the best development of fruit, the 430,564 people who attended the 84th annual State Fair, during which the 100th anniversary of the State of Iowa as a territory was celebrated, saw fruit exhibits of better than usual quality and of good color, particularly the apple exhibits from southeastern Iowa.

George Schurk of Fort Madison captured the grand sweepstakes trophy on a plate of Jonathans; W. L. Gardner of West Point, grand sweepstakes on 10 plates of Grimes. District premier exhibitors: Pemble's Fruit Farm, Indianola; E. O. Worth, Mondamin; L. C. Knudson, Marshalltown; Apple Grove Orchards, Mitchellville.

Prices to apple growers this year are very satisfactory. Harvest was a week to 10 days earlier than normal. In well cared for orchards quality was excellent.—R. S. HERRICK, Sec'y, Des Moines.

**Increase the demand for YOUR fruit by packing it in Bemis Lenonet Bags**

As growers everywhere will tell you, you can easily sell more . . . and make more on apples this year by packing them in Bemis Lenonet Open-Mesh Bags. Here's why: Merchants show a preference for . . . and pay top prices for apples packed in these modern, household-size, "Visible-Content" bags because they greatly increase retail sales.

In addition, Bemis Lenonet Bags cut down spoilage and waste and selling time. And they make mass displays easy to build and maintain, which is what the modern retailer is looking for.

Yet Bemis Lenonet Bags are economical . . . are quickly and easily filled . . . and make even the choicest fruit look better.

**MAKE THIS TEST** Just pack a few Bemis Lenonet Bags and show them to your customers. You'll be surprised how quickly they "go for them." Mail the coupon below today for sample bags, prices and details. No obligation. Make this test now and prove the extra profit-making ability of Bemis Lenonet Bags before your heavy selling season starts.

BEMIS Lenonet OPEN-MESH BAGS

**Bemis Bro. Bag Co.**
**426 Poplar Street, St. Louis, Mo.**

Without obligation send at once samples, prices and full details of the following Bemis Open-Mesh Apple Bags:

Lenonet Apple Bags..... 5 lb..... 10 lb.
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Name.....
Post Office.....
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Write for Booklet, "Bordeaux Mixture—Its Preparation and use"

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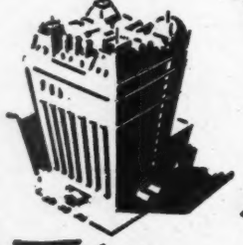

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ROOFLESS OR FULL ROOF

SAVE HALF OR MORE

90 DAYS' TRIAL

If you need teeth, but do not care to spend much money, my pleasant economical method is what you want. My guarantee plan gives you three months' trial to see how they fit and look. Your money back if not perfectly satisfied any time during 90 days' trial. I have thousands of satisfied customers in United States and foreign countries wearing my dental plates made by mail. My Special Method is founded on 30 YEARS' EXPERIENCE.

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By James S. Shoemaker

Complete discussions of all phases of production and marketing of grapes, strawberries, bramble fruits, currants, gooseberries, blueberries, and cranberries feature this text and reference book. Written in an easily understandable style, the practical grower will find this volume both interesting and useful.

52 Illustrations 434 Pages

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FRUIT TREES, VINES, AND PLANTS OF UNEXCELLED QUALITY: 500,000 Peach, 200,000 Apple, one and two year; thousands of Pear, Plum, Prune, and Cherry; hundreds of thousands of small Fruit Plants. Large and small planters are invited to write us for our latest FALL Price List. These prices are the lowest in our history and mean a huge saving to our customers. They are Free to you. BOUNTIFUL RIDGE NURSERIES, Box C, Princess Anne, Maryland.

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## WANTED

WANT TO HEAR FROM OWNER OF PROPERTY FOR sale or trade. J. HOUCK, Tiffin, Ohio.

# NEW

- BOX ASSEMBLY RACK
- FARM TIRE PUMP

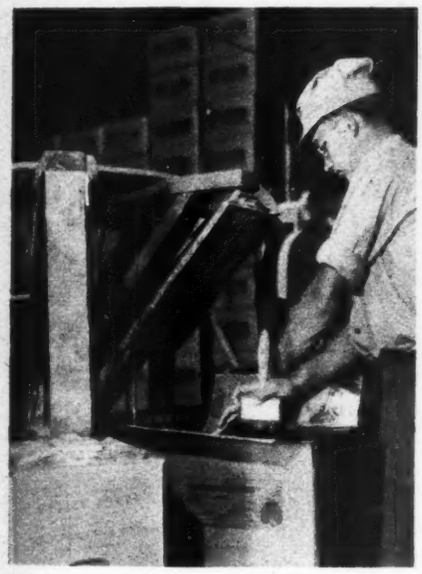
By HANDY ANDY

**One of my farmer friends has just told me about an unusual arrangement he used for injecting molasses into feed when the silo was being filled. While the particular operation doesn't interest me much, it shows that by constant observation we can all find ways to better our work from day to day through use of new equipment and methods.**

## BOX ASSEMBLY RACK •

While staplers have come into use quite extensively on those farms packing fruit in paper containers, there's still a need for gluing in some cases. One orchardist uses a box secured with staples at the corners with glue as the bottom fastener.

Since his stapling equipment would take care of the corners but not the bottoms, this grower devised a rack that allows rapid assembly of the boxes. The rack consists of a series of platforms which turn on a central shaft and which are just large enough to support a box in an

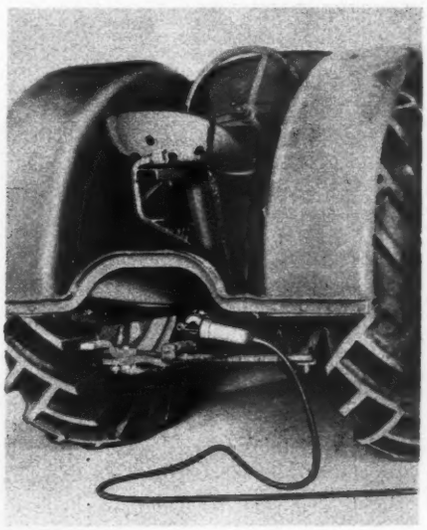


upside-down position. A worker paints the bottom flaps with glue and a flat board the size of the box bottom is lowered on the box, thus sealing the flaps. The board is braced with a shaft about an inch by four inches and this in turn is supported by two by fours jutting out from the central framework.

The above picture shows a worker gluing the bottom flaps while on his left is one of the glued boxes in position on the rack while being pressed. An experienced worker is able to assemble boxes rapidly with this rack.

## FARM TIRE PUMP •

It's bad enough to have a flat tire on any vehicle, but to have a flat with one of those big tractor tires, in the middle of the orchard, is something that we all want to avoid. Pumping up one of the big tires by hand is a time and energy consuming job.



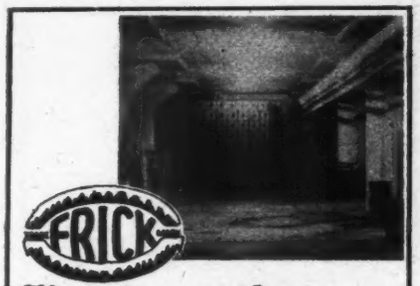
Just announced is a compact, sturdily-built farm tire pump that fits right on the power take-off shaft of most tractors. Photos shown here indicate the manner in which the pump is fitted to the tractor. Upper illustration shows pump hose with gauge. Gauges are available with pump units at small extra cost. The lower picture clearly illustrates how the pump is attached on tractors having platforms over the take-off. Pump is ready for operation by slipping on the power shaft and hooking up the two chains that hold it in position. Only requirement where tractors are to be fitted with this new pump is that the power take-off shafts be splined.

The pump can be used for any rubber tired fruit farm implement as well as the family car. It's said that the pump furnishes only fresh, clean air to tires with no oil or fuel spray that will damage rubber. Another use of the pump that has occurred to us is for blowing out stationary spray pipe lines to lessen freezing and thawing dangers.

*Never* put anti-freeze in a dirty radiator! The engine will overheat. You'll lose the anti-freeze and you may cause expensive damage to your car. It's easy to clean out the cooling system of your truck with SANI-FLUSH. It costs only 10c. (25c for the largest trucks and tractors.) It takes only a few minutes.

Pour SANI-FLUSH in your radiator. (Follow directions on the can.) Run the motor. Drain. Flush once. Refill with anti-freeze solution. Then you're all set for the winter. SANI-FLUSH is safe—cannot injure motor or fittings. You'll find SANI-FLUSH in grocery, drug, hardware, and five-and-ten-cent stores. 25c and 10c sizes. The Hygienic Products Company, Canton, Ohio.

**Sani-Flush** Safe NOT CAUSTIC
KEEPS RADIATORS CLEAN



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# SUCCESSFUL ORCHARDS

● A "ROUND TABLE" PAGE FOR EVERY GROWER ●

## LONG ISLAND GROWER HAS COVER PREFERENCE

WRITING on the soil management practices of F. A. Sirrene, a neighboring Long Island orchardist, Morris Gordon, has this to say:

"Panic or summer grass is the best cover crop for Long Island, according to Mr. Sirrene. He says that a good cover must prevent soil washing, must add to the fertility and humus content of the soil, and, for his purposes, the crop must be annual in growth, for he cultivates intensively in the spring to stimulate early tree growth. The Sirrene orchard is cultivated one way which eventually produces permanent terraces to break the water flow down the slopes. Mr. Sirrene does not approve of a sod mulch system for hilly ground, for he says that water will flow off sod faster than if the land is cultivated and terraced.

"Cowpeas and crimson clover, both legumes, are used along with the panic grass to prevent soil washing. Although it is not a perennial, crimson clover will live overwinter after sowing in the fall. This crop is turned under in the spring. Cowpeas are planted in June and are allowed to stay on the land overwinter before disking into the soil in early spring.

"Buckwheat is a poor soil binder on the hilly land which makes up the Sirrene orchard, but its blossoms serve as food for bees and the seeds are eaten by pheasants and other game birds. In the younger parts of the orchard, where the ground is not too steep, tomatoes, cauliflower, and beans are grown between the trees. After the last cultivation of the vegetables, rye is sown between the rows. Another section of the orchard produces a crop of oats for horses on the farm and at the same time prevents washing.

"Mr. Sirrene has found that because of insufficient potassium and phosphorus in the soil the exclusive use of a nitrogen fertilizer produces fruit of poor flavor and keeping quality. He uses one-half ton per acre of a 5-8-5 complete fertilizer which is applied broadcast."

## WINTER PROTECTION HINTS FOR BERRIES

FROM John A. Minger of Nemaha County, Kansas, comes word of his methods of producing Youngberries and Boysenberries.

"Seven years ago I decided to give Youngberries a trial, having read glowing accounts of the success with this fruit in other localities. I set out 14 plants, which I got from Michigan, thinking northern-grown plants would be more hardy and better able to withstand our northeastern Kansas winters.

"Since then I've purchased plants from California and planted dozens of my own raising and I find no difference in hardiness. Youngberries require winter protection here, either with straw, dirt, or other suitable material. I have found that straw is the most convenient.

"Before hard freezing I cover the vines with two or three inches of straw to protect them from the first freeze. They are more tender at this time than later. After the ground has frozen three or four inches deep, I apply additional straw to make the cover about six inches thick. If the full six inches of straw were put on at the first covering, it is likely that the ground wouldn't freeze around the roots, resulting in the buds getting started too early in the spring.

"About the middle of March, I remove all but two or three inches of straw to prevent the drying effect of sudden exposure to wind and sun. In 10 days or two weeks the rest of the straw may be removed, depending on the weather, and the vines put up on stakes or wire trellises. I usually thin them so as to leave four canes to a plant the second year and cut the canes back to about four feet. After that, if the ground has plenty of moisture, the roots will support eight or 10 vines 10 feet long. I cultivate shallow, since deep cultivation tears up the surface roots.

"A straw mulch applied about June 1 will hold moisture and keep the ground cool during the two hot months of July and August. Immediately after harvesting the crop, the old canes are cut out close to the ground and burned. New growth is then pushed back into the row and held in place with wires or pegs. Bunching up of vines facilitates covering for winter protection.

"The thornless Youngberry and the Boysenberry are similar but much more hardy than the thorny Youngberry. For me, at least, they bear 50 to 100 per cent more fruit. The Boysenberry is of even better quality than the Youngberry. Berries grow on long spurs and usually six to eight berries make up a cluster. I am digging up most of the thorny Youngberries, planting the thornless and Boysenberries.

"I find it good practice to cut back new growth in the spring until about the first of June. This throws all of the plant strength into fruit spurs and blossoms. Then I train the new growth along the row.

"Mice sometimes get troublesome under the straw. Poisoned wheat, placed in old tobacco cans under the straw where birds won't get it, will stop them.

"I personally consider Boysenberries and Youngberries next to the strawberry as a dessert fruit. For canning and preserving they are superior since they lose none of their zest in the canning process."

Mr. Minger's contribution is timely, for most questions on new brambles concern hardiness and overwinter care.

Here's one of John Minger's two-year-old Boysenberry plants on a two-wire trellis. His methods of winter protection and culture of this fruit are explained on this page.

## $1.00

### EACH FOR YOUR NEW IDEAS

Here, each month, growers get together to discuss experiences and ideas. The beginner as well as the veteran discovers many practical suggestions for better and more profitable fruit growing. You, too, have some experiences that will be helpful to fellow growers. Send them—briefly written on a penny card is satisfactory—to "ROUND TABLE EDITOR," AMERICAN FRUIT GROWER, 1370 Ontario St., Cleveland, Ohio. One dollar will be paid for each item published on this page.

## NORTHERN NUT GROWERS MEET IN BOSTON

THE 29th annual meeting of the Northern Nut Growers' Association was held in Boston, Mass., September 12-14, 1938. An extensive program of papers on various phases of nut culture was presented by authorities on nut trees and by workers in other fields of horticulture. Of especial interest were the contributions of authorities from Harvard University, the Arnold Arboretum, and the Massachusetts State College. Much valuable information which could be applied to the problems of nut culture was presented by staff members of these institutions.

The breeding of blight resistant chestnut trees was discussed by Dr. A. B. Graves of the Brooklyn Botanic Garden, whose report indicated that substantial progress was being made towards the development of blight resistant varieties. Dr. Karl Sax of Harvard Biological Laboratories discussed chromosomes in relation to plant breeding, and Dr. E. J. Schreiner of New Haven, Conn., discussed the breeding of certain trees. With several large institutions interested in the breeding of forest trees, including nuts, we may hope for substantial progress in the production of superior nut varieties.

A feature of the meeting was an afternoon in the Arnold Arboretum where the largest collection of nut tree species in the world has been assembled. Most of the species hardy in the northeastern states are represented by from one to several specimens. Many unusual and very meritorious woody plants were seen, among them several choice items as yet rare in the trade.

The exhibit of nuts was considered to be the largest ever assembled in this country and the Massachusetts Horticultural Society awarded the association a silver medal for the collection. Of especial interest was the large collection of nuts of the world exhibited by the Arnold Arboretum. The exhibits attracted much interest among visitors to the show.

The officers were re-elected for the ensuing year. The 1939 meeting of the association will be held at Rockport, Ind., September 7, 8 and 9.—G. L. SLATE, *Sec'y.*, Northern Nut Growers Assn., Geneva, N.Y.

## REDELBERTA TREES NOW IN BEARING

FIRST announced two years ago, the Redelberta peach, discovered by Jay Perry on his ranch near Kennewick, Wash., fruited this year on the first 200 trees produced from the new buds. Perry reports that this new peach, a sport or mutation from the Elberta, produced several hundred boxes of fruit.

While similar to Elberta in tree growth and fruit shape, the Redelberta is double red in color and ripens 10 days to two weeks earlier. Color is well distributed over the individual fruits even when they are heavily shaded.

As soon as the new fruit was announced, it was patented by Perry and is now being propagated by a northwestern nursery. Perry found the new peach in 1928, but official announcement of the variety was not made until 1936. However, Perry had planted some 200 of the first available trees produced from buds of the new type. These trees are now in bearing and yielded heavy for young trees during the past season. Northwestern growers and shippers are enthusiastic about the new peach because of its quality and early ripening.


# Something you can check in your own experience about "THE RAILROAD PROBLEM"

IT costs you about the same to plow and plant a field, whether it yields 15 or 50 bushels to the acre.

Your taxes are about the same, regardless of your harvest.

Well, the railroads' problems are something like that.

We have to run trains regardless of the volume of traffic, which means keeping up the whole railroad plant of the nation, with 418,000 miles of trackage. And in 1938, car loadings are off about one-fourth compared to 1937—and little more than half what they were in 1929.

Our taxes are pretty largely on property, just as yours are—and we pay them whether we make money or not, at the rate of a million dollars a day.

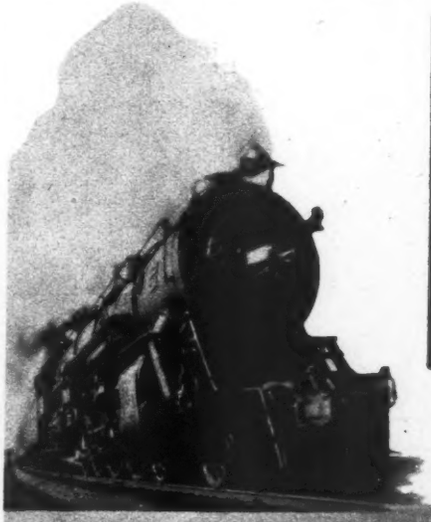
Beyond that, we have to meet a pay roll that takes just about half our total income. The wage rate per hour is now the highest it has ever been. We're paying our employes an average of more than 77¢ per hour—10¢ an hour more than in 1929.

When you get at the core of the railroad problem, it comes down to this:

It is due, at bottom, to the fact that railroads must operate under rigid regulations based on a fifty-year-old theory that they have a monopoly in transportation—and must compete with three other forms of transportation subsidized or helped by tax money.

What they need is the opportunity to run their business as a business—which means, greater freedom to adjust rates to meet competition and to adjust expenses to the conditions of their business.

The American railroads have worked out a complete program taking a sensible look at their needs. As one of the nation's leading group of shippers, you have a real interest in what that program is. We'll be glad to send you a copy if you'll write for it today.



**HOW ABOUT "DEAD HORSES"?**

It's been common talk for years that the railroads are "paying for dead horses"—that their capitalization is loaded with debt for property no longer useful, or that their cost was more than they are worth. The Interstate Commerce Commission has sifted this down after 25 years of study and finds that the present value of railroad transportation properties, even after full allowance for depreciation, comes to one and two-thirds billion dollars *more* than the total stocks and bonds outstanding.

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## Read Amazing PROFIT Reports on STARKING and GOLDEN DELICIOUS Apples

**STARKING,** the Great King of All Red Apples— red-all-over weeks before ripening — brings **PREMIUM Prices** in all markets—read these Actual reports from growers: **"I get 50% higher prices** for my Starking"—"My Starking **sold for 3 times as much** as standard sorts"—"Am putting out 40 acres more of Starking, it is **the best seller in Michigan."**

"The GOLDEN DELICIOUS is the World's Greatest Apple," said Luther Burbank. This huge golden yellow apple, deliciously sweet — juicy, astounds growers everywhere — in all sections it **has borne when only 2 years old.** Hardy, Young-and-Heavy-Bearing — an Ohio grower reports: "Heavy frosts killed all my varieties **except Golden Delicious;** they bring **50% more than others"** — an Illinois grower who took a **$5700.00 crop from 4½ acres** says: "My Golden Delicious trees have **never missed a crop."** A Georgian says: "Golden Delicious Trees **made $25.00 an acre land worth $1000.00"**—from a New York grower: "Have had nice crops from my Golden Delicious trees **since they were 3 years old,** received **twice as much for them** as for standard sorts." Like reports come from growers **all over the country** — big and small — about these wonderful Apples—STARKING and GOLDEN DELICIOUS. They are the **PROVEN GREATEST PROFIT Apples of All.**

New! STARKING (Trade-mark) Double-Red Delicious

(At top of page) NEW! U. S. Pat. Chestnut MONTEARLY & MONTCLAVE

(At right) New! U. S. Pat. Burbank COPPER CLIMBER Rose 1-3 size

STARK-BURBANK INSTITUTE OF HORTICULTURE

is carrying forward the great scientific work of Luther Burbank. Stark Bro's. successors to Luther Burbank, have exclusive Propagation, Control and Sale of BURBANK'S NEW CREATIONS.

All Fruits Pictured ⅔ Actual Size

FREE PLANTING PLAN ¼ ACRE & ½ ACRE HOME ORCHARD

FREE PLANTING PLAN for HOME-YARD ORCHARD

Stark FREE PRIZE-GARDEN MANUAL

PRIZE FRUITS · SHRUBS · ROSES

STARK Nurseries
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Louisiana, MISSOURI
Send me FREE, BIG NEW 1939 PRIZE FRUIT BOOK, and details of FREE TREES OFFER.

☐ CHECK HERE for FREE HOME-ORCHARD BOOK and PLANTING PLANS.

☐ CHECK HERE for NEW FREE GARDEN MANUAL on PRIZE ROSES, SHRUBS, TREES, LANDSCAPING.

### Burbank's JULY ELBERTA NEW U. S. Pat. Peach

This Sensational **VERY EARLY** Freestone is making **AMAZING** records everywhere! Gov't and State Experiment Stations recommend it highly. Big, red-all-over, rich-flavored, the **JULY ELBERTA ripens 20 days earlier** than Elberta **—bringing highest market prices.** Starts producing at 2 years old—wonderful heavy crops. Growers say: "My 2-year-old July Elbertas bearing, **they are hardier than others"—"Outstanding commercial peach"—"Bear when others fail, received $2.40 per bu."**

### "$3.00 to $4.00 a Bushel for My HAL-BERTA GIANT Peaches"

HAL-BERTA GIANT is the World's First Patented Peach — a **tremendous** producer — **huge** (many weighing a pound each)—**wonderfully hardy** — (has withstood 26° below zero). Ohio grower says: "My Hal-Berta Giants **sold for $3.00 to $4.00 a bu.**—took first prize at County Fair"—another reports: "The best peach in my orchard, get $2.25 to $2.50 a bu."; scores of reports like these come from growers in all sections.

### Hundreds of NEW, Better Fruits Trees—Shrubs—Roses

This page can show only a few of the **Great PRIZE FRUITS** sold only by STARK, but send for the **Big FREE BOOK**—it will show you the World's Choicest Selection of **Finest Fruits**—Famous STARK & BURBANK Shrubs and Roses as well—**hundreds of varieties.** Check the Coupon also for Stark's **NEW Prize-Garden Manual—FREE.** These two Great Books will give you **invaluable gardening help** and superb showings of exquisite **STARK** and **BURBANK CREATIONS** of marvelous beauty.

### Get Our LATEST Free Trees Offer

With the **Big STARK Book** comes our **NEW Liberal Offer** of **FREE TREES**—open to all customers—real **Money-Saver!** CHECK COUPON FOR **STARK FREE HOME-ORCHARD BOOKLET WITH PLANTING PLANS**—a valuable guide to orcharding success. **CHECK** and **MAIL COUPON NOW.**

# STARK Nurseries

**Box B-18** Town of **Louisiana, MISSOURI**

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## MADE $206.00 in 1 Month SELLING STARK TREES

J. T. Fulk began selling STARK Trees in his spare time. Recent records show his **cash income was $206.58 for ONE MONTH'S WORK**—he has **totaled $128.54 for ONE WEEK**—just calling on friends and neighbors with the STARK SELLING OUTFIT. You, too, can be your own boss and make a good, steady income in this pleasant, healthful, PROFITABLE occupation. We welcome men everywhere for full time or spare time—no previous experience needed. **STARK'S CENTURY-OLD REPUTATION,** Free Sample Apples and a great Fruit-tree Shortage make it easy to get customers. CHECK SQUARE IN COUPON for our LIBERAL WEEKLY CASH INCOME PLAN.

I may plant ..... Trees ..... (Number) (Kind)

Name ..... University of Idaho

P.O. ..... LIBRARY County .....

St. or R. F. D. ..... MOSCOW IDAHO State .....

☐ CHECK HERE for our LIBERAL WEEKLY CASH INCOME PLAN for SELLING STARK PRIZE TREES, SHRUBS, ROSES.

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